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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/595,355

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EXAMINER

KANG, EDMUND C

ART UNIT

PAPER NUMBER

2885

MAIL DATE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/595,355	Applicant(s) ARAI ET AL.	
	Examiner Edmund C. Kang	Art Unit 2885	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's amendment, filed 10/31/2007, has been entered. Claims 1-4 have been amended. Claims 1-4 are currently pending.

Claim Objections

2. Claim 1 is objected to because of the following informalities: The semicolon in line 9 of the claim should be deleted, since it immediately following another semicolon in line 3 of the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation that "each of the light emitting diodes located in corner portions of the rectangular surface reflection sheet is equidistant from the two closest side reflection sheets and the corner reflection sheet" is not described in the specification. Page 15, line 18-page 16, line 1 describes that the distances between the

LEDs and each reflection sheet are "nearly equal", which is not the same as saying equidistant.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

*note – claim 1 was interpreted as best understood by the examiner – see 112 rejection above.

6. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe (JP 10-134619) in view of Ellens et al. (US 2003/0026066 A1).

Regarding claim 1,

Watanabe discloses,

A backlight device comprising:

a rectangular surface reflection sheet (**11**) having front, backward, left side and right side directions along its surface and four corner portions (see annotated Fig. 1 below);

a plurality of side reflection sheets (see annotated Fig. 1);

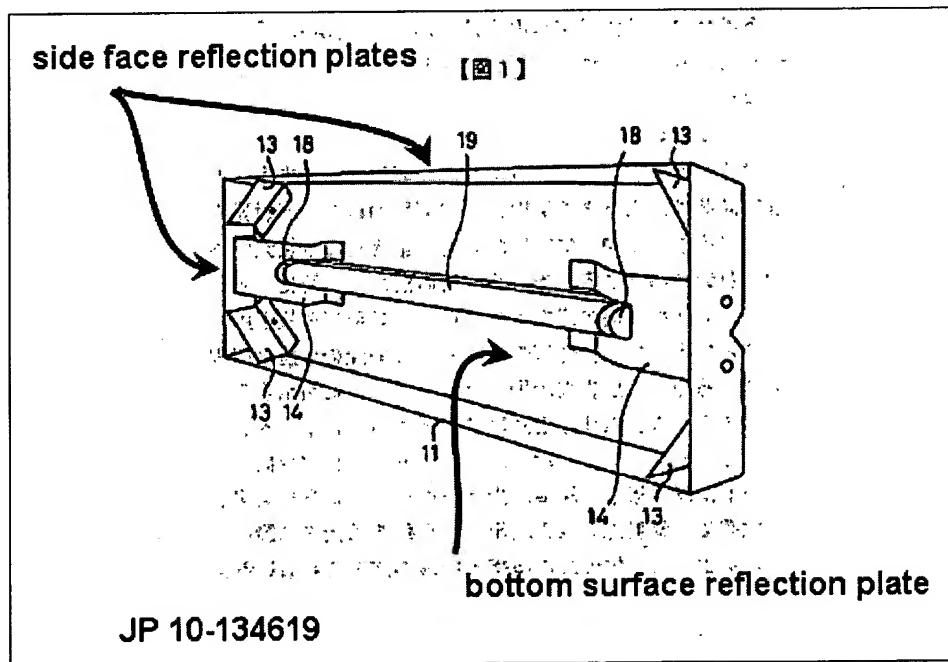
a plurality of corner reflection sheets (**13**); and

a light source unit (Figs. 1-3, **18, 19**), mounted on the surface reflection sheet (see Figs. 1 and 3),

wherein the side reflection sheets are positioned along respective edges of said rectangular surface reflection sheet and extend at an angle therefrom, adjacent side reflection sheets abutting along adjoining edges (see Figs. 1 and 3),

the corner reflection sheets covering interior corners formed by the surface reflection sheet and the side reflection sheet at the corner portions of the surface reflection sheet (see Figs. 1 and 3),

the side and corner reflection sheets reflect light emitted from the light source unit towards the front, backward, left side and right side surface directions (inferred effect from the structure of the reflecting surfaces),



Watanabe does not disclose that the light source unit comprises a plurality of light emitting diodes.

However, Ellens teaches a light source unit (5), mounted on a surface reflection sheet (4), comprising a plurality of light emitting diodes ([0020], "array of UV diodes 5"); wherein light emitting diodes of the light source unit are located at the corner portions of the surface reflection sheet (see Fig. 1 – LEDs at two of the four corners are visible in the figure). Also, Ellen's light emitting diodes located in the corner portions of the rectangular surface reflection sheet is nearly equal distance from each adjacent edge.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the backlight device of Watanabe, by replacing the fluorescent light source and mounting a plurality of light emitting diodes to the light source unit as taught by GC Corp, in order to reducing supply voltage and problems with electromagnetic compatibility associated with the fluorescent lighting (Ellens, [0008]). The removal of the fluorescent light source also removes the need for an inverter or ballast, which will reduce thickness and weight of the backlight device, and also conserve power and increase illumination lifetime. Furthermore, although Ellens does not specifically teach that each of the light emitting diodes located in the corner portions of the rectangular surface reflection sheet is nearly equal distance from the two closest side reflection sheets and the corner reflection sheet forming the interior corner at said reflection surface corner portion, the corner LEDs of Ellen would be nearly equal distance from the two closest side reflection sheets of Watanabe, when the parts are combined, since Ellens' corner LEDs are nearly equal distance from each adjacent side, on which the side reflection sheets of Watanabe would lie. Also, it can be considered that the corner reflection sheets of Watanabe would also be, although not exactly equal,

at **nearly** equal distance to the LEDs as the side reflection sheets when combined with Ellen. Even if the corner reflection sheets of Watanabe, when combined with Ellen's LEDs, were positioned at a distance that is so much farther or closer to the LEDs than the side reflection sheets, that it would be considered to not be even **nearly equal** distance away, it would have been obvious to move the position of the corner reflection sheet or the LEDs to have nearly equal separation as between the LEDs and the side reflection sheet, for the purposes of optimizing illumination reflection properties, backlight size and structural integrity, as well as for optimizing heat transfer between the LEDs and the reflection sheets (i.e., equal distances of the reflection sheets from the LEDs will result in similar heat distributions, and less temperature gradient across the reflection sheets, which can lead to less warping and other thermal/structural issues). It has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

Regarding claim 2,

Watanabe further discloses, wherein a reflection surface (Abstract, line 11-12, "...whose reflection surfaces include mirror surface luster...") of the corner reflection sheet takes a polygonal shape (Figs. 1 and 3 – corner reflection plates 13 are polygonal, specifically rectangular).

Regarding claim 3,

Watanabe further discloses, wherein a reflection surface (Abstract, line 11-12, "...whose reflection surfaces include mirror surface luster...") of the corner reflection sheet take a flat plate shape (Figs. 1 and 3 – corner reflection plates are flat plates, specifically rectangular planes).

Regarding claim 4,

Watanabe further discloses a reflection surface (Abstract, line 11-12, "...whose reflection surfaces include mirror surface luster...") of the corner reflection sheet.

Watanabe does not teach that the reflection surface of the corner reflection sheet takes a spherical shape.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the backlight device of Watanabe in view of Ellen, by changing the shape of the reflection surface of the corner reflection plate to be spherical, since lacking any criticality, changing the form or shape of prior art parts does not make the claimed invention patentable over that prior art (*In re Dailey*, 149 UPQ 47).

Response to Arguments

7. Applicant's arguments with respect to claims 1-4 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hsiao et al. (US 2007/0230206 A1) discloses a backlight assembly with bottom surface reflector, side reflectors, corner reflection plates, and LED light sources.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edmund C. Kang whose telephone number is (571) 272-9083. The examiner can normally be reached on 8:30am-5:00pm EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Edmund C Kang
Examiner
Art Unit 2885

ECK



JONG-SUK (JAMES) LEE
SUPERVISORY PATENT EXAMINER